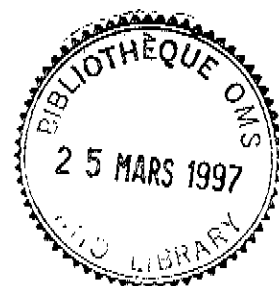


# Strengthening the teaching on immunization

-- In basic (pre-service) education  
programmes for nurses and other health  
professionals



**GLOBAL PROGRAMME FOR VACCINES AND IMMUNIZATION  
EXPANDED PROGRAMME ON IMMUNIZATION**



*World Health Organization*  
*Geneva*  
*1997*

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The Expanded Programme on Immunization  
of the Global Programme for Vaccines and Immunization  
thanks the following donors whose unspecified/undesigned financial support  
in 1996 has made the reproduction of this document possible:

UNICEF  
Federation of World Health Foundations  
*and the Governments of*  
Australia  
China  
Ireland  
Netherlands  
Norway  
Republic of Korea

*Ordering code: WHO/EPI/TRAM/97.01*  
*Printed : February 1997*

GPV Catalogue available on the Internet at:  
<http://www.who.ch/programmcs/gpv/gEnglish/avail/gpvcatalog/catlog1.htm>

Copies may be requested from:

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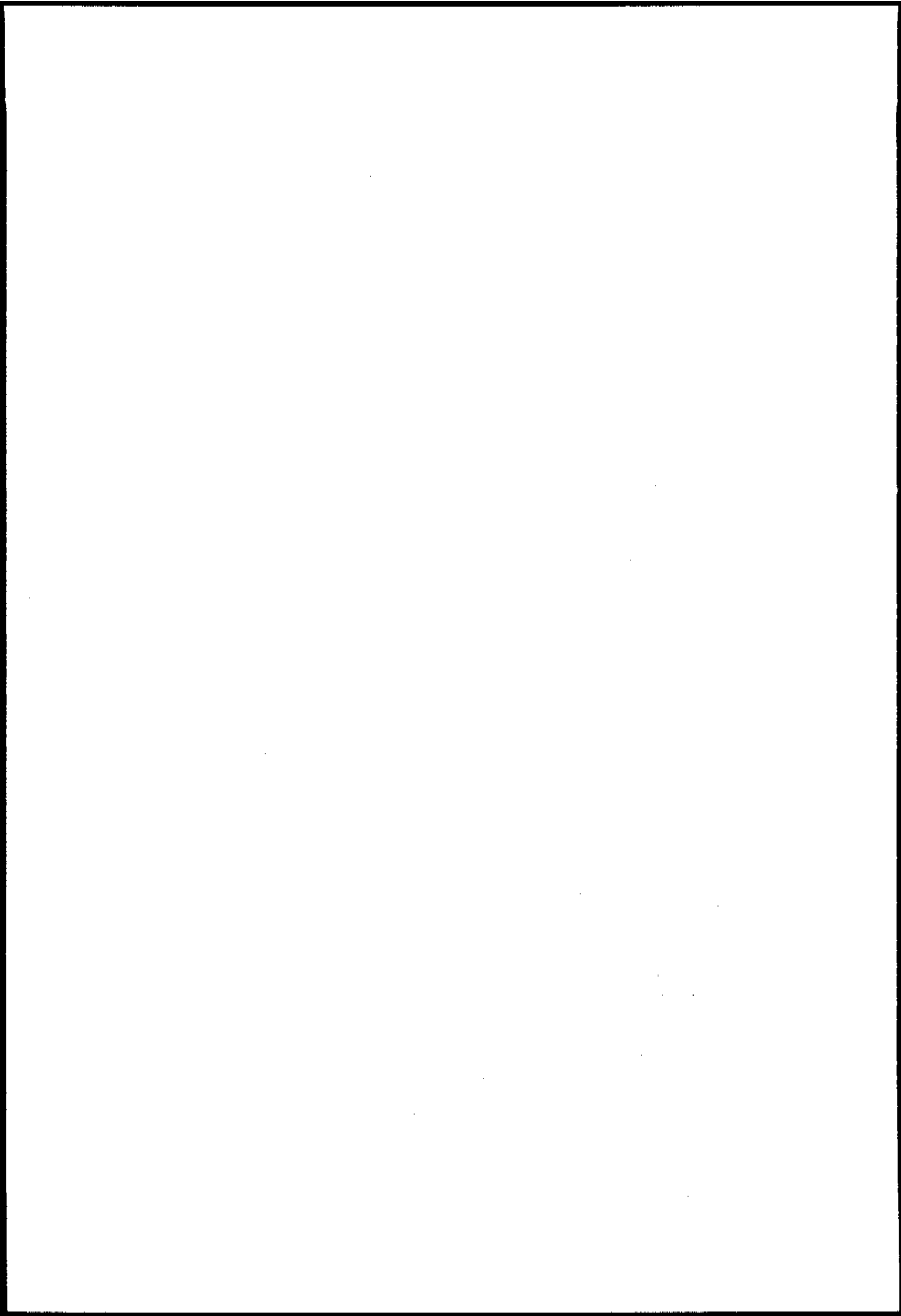
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# 1. Introduction

To reach the goal of health for all by the year 2000, re-orientation in basic (or pre-service) training for all cadres of health professionals is needed. Furthermore, since the start of its Expanded Programme on Immunization (EPI) in 1974, the World Health Organization (WHO) has encouraged countries to give high priority to the training of health workers as a strategy for developing and sustaining good quality immunization services in the community.

WHO has also recognized that, in any sustainable health programme, knowledge, skills and attitudes related to immunization and other primary health care (PHC) activities cannot depend on in-service training alone – information about immunization should be an integral part of basic education programmes.

In response, WHO/EPI has developed a comprehensive *Manual for instructors of primary health care workers*<sup>1</sup> and has proposed methods for its use. WHO has also developed a similar manual in relation to child health and development. These manuals promote the concept of teaching primary health care workers in a realistic setting relevant to their own country, thus requiring both teachers and students to respond to the health care needs in a community.

The WHO/EPI manual includes a model curriculum (course outline) to assist those responsible for curriculum revision/development and teaching to decide on the content, course placement, teaching/learning methods and sample lesson plans. The manual also includes student learning material and suggested student assessment methods.

## 1.1 Purpose

All national health curricula will require strengthening from time to time. The strengthening needs will vary, ranging from development of an entire new curriculum, through comprehensive reorientation of the existing curriculum, to a revision and updating of the teaching of a particular course or subject area.

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<sup>1</sup> *Manual for instructors of primary health care workers*, unpublished document WHO/EPI/TRAM/93.4. Available on request from the Global Programme for Vaccines and Immunization, World Health Organization, 1211 Geneva 27, Switzerland.

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This document provides an outline of how to strengthen the teaching of one particular topic – immunization – within the existing curriculum for a basic (pre-service) education programme for nurses/midwives and other health professionals. It is designed for use in conjunction with the *WHO/EPI Manual for instructors of primary health care workers* referred to above.

## 1.2 Users

The outline has been written for those responsible for curriculum development and the teaching of immunization topics in educational institutions, in the community, or in health facilities.

## 1.3 Structure

The document describes the rationale for strengthening the teaching on immunization in a basic education programme, and goes on to outline the main activities required to achieve the desired curriculum changes:

- preparatory planning, which includes an orientation and planning meeting and a review of the existing education programme
- a curriculum workshop to review and revise the curriculum and develop an action plan for implementation of the revised curriculum.
- implementation
- monitoring and evaluation.

The outline provides general suggestions only, and will need to be adapted locally to make it relevant to specific country needs. It should be noted, however, that the process described can be also applied to strengthen the teaching of other PHC topics and components.

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## 2. Rationale for strengthening the teaching on immunization in a basic education programme

### 2.1 What is curriculum strengthening?

The following steps can be included in a curriculum strengthening process:

- revision of the technical content based upon the job descriptions of the health personnel concerned, advice from technical units and clinical practice
- updating of the technical knowledge and skills of faculty/teachers responsible for the subject area and the teaching of EPI topics ("teacher training")
- development of lesson plans
- ensuring that sufficient appropriate training materials are available in educational institutions and in the workplace
- ensuring that sufficient appropriate supplies and demonstration equipment are available in educational institutions and in the workplace.

### 2.2 Who needs training?

All cadres of health personnel who perform major tasks related to immunization services should receive basic training relevant to these tasks.

### 2.3 Why is basic training needed?

Many of today's new graduates in the health professions are unable to provide basic immunization services in the community. In some cases, they lack basic knowledge, for example about national immunization schedules or safe injection techniques. More frequently, they have not had sufficient practical exposure to topics such as general planning of immunization services, safe handling and storage of vaccines, safe injection techniques, disease surveillance, and how to increase immunization coverage.

If the students acquire these skills during their basic education programme, they can begin their job well prepared to provide immunization services; they will need only a brief introduction when they assume work or change their duty stations.

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## 2.4 What is the impact of curriculum strengthening?

Health professionals with a strong foundation in basic immunization activities provide the PHC sector with a wide range of skills and flexibility in work assignments, which should result in:

- promotion of the PHC concept in basic education
- improvement in the quality of health services
- release of resources for in-service training.

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## 3. Preparatory planning

### 3.1 Orientation and planning meeting

To start the process, an orientation and planning meeting is recommended. This meeting can be arranged by the Ministry of Health, or one of the national educational institutions. Its purpose is to decide whether curriculum strengthening is needed, and to agree on the framework for the necessary work to be done.

It is very important that the ministry/department and person(s) responsible for arranging the meeting have the full political support and technical authority needed to provide the leadership for further actions.

The meeting chairman and participants will depend on the level and depth of the curriculum change needed and the country's infrastructure. If only minor re-arrangements are thought to be needed, the national EPI manager may be well suited to plan and chair the meeting. If a comprehensive revision is likely, it may be appropriate for a representative from, for example, the government training department or from one of the educational institutions to be given the task.

The following participants may be considered:

- the national EPI manager
- the national managers of other health programmes with relevance to immunization activities, i.e. HIV/AIDS, child health and development, family health, nutrition and tuberculosis
- representative from the government department responsible for training/human resources development
- representative from the curriculum development unit in the Ministry of Education responsible for basic health training programmes
- representative from the Ministry of Health department responsible for nursing
- representative of the national legislative or regulatory body responsible for certification and registration of health professionals and the formal approval of curricula
- representative of the national examination body or board (if different from the legislative body)
- representatives of appropriate health professional associations
- representative of the teacher training department (university)
- representatives of the educational institutions concerned, including student representation.

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**Note:** Many countries have a curriculum committee or/and a technical working group for curriculum development/revision, members of which *must* be included in the planning meeting.

Early involvement in the process by the relevant ministries, departments, organizations and institutions has a number of advantages:

- stimulating interest and increasing understanding
- developing a sense of ownership and commitment
- minimizing/preventing resistance to change
- facilitating effective implementation of the revised curriculum
- promoting the integration of PHC training.

### *Meeting agenda*

The meeting agenda should be well planned and presentations should be brief and informative, rather than detailed technical discussions. The key issues are EPI (PHC) services and the need for improvement of basic training of health care workers. The agenda may include:

- an overview of national EPI (PHC) programme(s) and EPI training needs
- an overview of the teaching on EPI in educational institutions
- an indication of the curricula/courses/subjects most in need of strengthening.

Agreement should be reached on the curricula/courses/subjects to be strengthened and the steps to be taken to achieve the desired changes. Depending on the local infrastructure, a working group or specially established "task force" can be given the authority to develop an action plan and ensure its implementation. A preliminary time-frame and reporting requirements should also be established.

**Note:** all curricula cannot be strengthened at the same time!

### **3.2 Collection of information on current education programmes**

Once the working group or task force has been set up, its first task is to collect information on current education programmes in order to identify key points which facilitate or hamper the development of desired graduate competencies.

Examples of methods to be considered include:

- interviews with deans/headteachers and course coordinators
- interviews with teachers responsible for teaching immunization topics
- interviews with students prior to their graduation
- interviews with experienced health workers and supervisors in clinical practice
- review of job descriptions for the health workers in question
- observation of teaching in classroom and practice

- 
- discussion with clients and community leaders
  - observation of the performance of newly graduated health workers.

Questions may include the following:

- How many educational institutions are there, where are they located, how are they operated (government or nongovernmental organization)?
- How many students are admitted and graduate each year?
- Do schools teach a national curriculum or how do curricula differ?
- What type of curriculum is taught, i.e. is it subject-based, integrated or based on competency?
- Has the curriculum been re-oriented towards PHC, when and how?
- How and what do the students learn about immunization?
- What is the formal and informal collaboration between EPI, communities, health service facilities and educational institutions?
- What are the major problems related to the teaching of immunization theory and practice?

An analysis of the information collected forms the basis for determining the need for change and is the starting-point for actual strengthening of the curriculum.

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## 4. How to plan the curriculum workshop

The working group's next task is to arrange a curriculum workshop. A working period of approximately 10 working days is needed, alternatively a series of meetings or short seminars can be organized.

### 4.1 Objectives

The overall objective is to strengthen the teaching on immunization in the basic training for PHC workers.<sup>2</sup>

The specific objectives are:

- to present national EPI policies and strategies
- to review Ministry of Health job descriptions for health workers
- to present the basic education training programme on immunization
- to work through the WHO/EPI *Manual for instructors of primary health care workers* and relevant national resource materials
- to review and revise the existing curriculum
- to prepare an action plan for the implementation of the revised curriculum.

### 4.2 Who will participate?

To meet the objectives, participants should be carefully selected with a balanced representation. They should include faculty members from the educational institutions, participants with curriculum development skills, representatives of other health programmes (e.g. child health and development), health service providers and clinical supervisors. Representatives of the Ministry of Health and other relevant government departments should also be invited, if not already included.

The number of participants should not exceed 25 and there should be an appropriate mix of skills, for example 60% educators/teachers and staff with experience in curriculum development and 40% technical staff and supervisors from different levels of the health systems. Ideally, students should also be represented.

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<sup>2</sup> Other PHC components can also be included, as appropriate.

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### 4.3 Who will coordinate and facilitate?

The workshop coordinator should be someone who can provide sound leadership during the entire workshop, for example, a national health programme (or division) manager/training officer, an influential faculty member or a health supervisor.

A group of facilitators (6–8) is also required. They should be experienced teachers and people skilled in curriculum development and practical management of immunization activities.

### 4.4 Facilitator training

Prior to the workshop, a short period of training (3–4 days) for facilitators should be arranged.

The objectives of facilitator training are:

- to provide an overview of the workshop, its objectives, who will attend and how it will be conducted
- to introduce the WHO/EPI *Manual for instructors of primary health care workers* and other resource materials that will be used during the workshop
- to provide the opportunity to practise a variety of teaching methods suggested in the workshop materials
- to define and clarify the roles and responsibilities of the facilitators during the workshop
- to finalize the agenda and assign responsibilities.

During the workshop the major responsibilities of the facilitator will be:

- to provide assistance to the workshop coordinator
- to be available to answer questions from participants or refer them to someone else who can help
- to ensure that the necessary materials, supplies and equipment are available for the group work
- to facilitate the group work and focus discussion
- to monitor the quality and progress of the work process, including the group dynamics
- to ensure that proposals for changes are specific and indicate precisely in which context and how the revised content will be taught
- to facilitate the development of an action plan to implement the revised curriculum
- to participate in daily facilitators meetings.

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## 4.5 The workshop agenda

The workshop consists of two parts. During the **first part** participants will:

- receive information on the national immunization programme, including programme goals, strategies and immunization in practice
- work through the WHO/EPI *Manual for instructors of primary health care workers* and other resource materials
- observe and discuss immunization services in a community or clinic
- practise a wide variety of innovative/participatory teaching methods.

During the **second part** participants will:

- review the relevant job descriptions focusing on immunization activities
- identify courses/topics on immunization in the curriculum
- review the teaching methods and materials in current use, especially for practical teaching
- decide on courses, content and teaching methods that need strengthening and revise the curriculum accordingly
- develop a sample lesson plan
- develop an action plan for the implementation of the revised curriculum.

Review and revision of the curriculum and development of the action plan are considered further in sections 5 and 6, respectively.

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## 5. Review and revision of the curriculum

### 5.1 Curriculum review

The review should cover the four elements in a curriculum: objectives; content; teaching and learning methods; and assessment and evaluation methods.

The review questions may vary, but the following are likely to apply to most curricula.

#### *Objectives*

- Are the educational objectives prioritized and directed towards the national health policies and strategies of EPI and other PHC components? To what extent? What are the omissions and limitations if any?
- Is there enough emphasis on development of knowledge, skills, attitudes and values in relation to the cognitive objectives?

#### *Content*

- Is the content congruent (in harmony) with national EPI policies, strategies and activities? What are the omissions and limitations if any?
- What criteria are used for the selection of subjects taught and course placement?

#### *Teaching and learning methods*

- Do the teaching methods stimulate active student participation and development of the competencies necessary for the delivery of quality immunization services, i.e. communication, teamwork, problem-solving, etc.
- Are the teaching materials congruent with the content and the objectives?
- What is the balance between theory and clinical teaching?

#### *Assessment and evaluation methods*

- Are the student assessment/evaluation methods comprehensive, i.e. do they include a whole spectrum of different and effective methods?
- Do they consider both the "process" and the "product"? What are the omissions and limitations?
- What type of questions make up tests and examinations? Are they mainly on details, or do they have a holistic focus? Do they stimulate and promote independent critical thinking, logical reasoning and problem-solving capacity, or do they merely promote rote-learning of details?

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The questions given above are examples only. Each working group/task force must prepare its own list of questions, relevant to the needs for the strengthening of a particular curriculum component.

## 5.2 Curriculum revision

Once the changes needed have been determined and priorities for change have been decided, revision of the curriculum can proceed in the following stages.

### *Statement of specific course objectives*

Each objective at course or subject area level should correspond with the agreed overall objectives. If there is a discrepancy, the course or subject objectives must be revised accordingly. Although it is easier to state learning objectives related to knowledge and practical skills, it is also extremely important to formulate objectives in relation to attitudes and problem-solving ability.

### *Priority content*

Each objective must be covered by specific content.

The content should be up-to-date: the curriculum in the WHO/EPI *Manual for instructors of primary health care workers*, together with national policy documents on EPI and other relevant materials, can be used as references in this regard.

If relevant content areas or topics are missing, or if they are not adequately covered, they must be included or reinforced in the revised curriculum.

Students should be introduced to PHC concepts early in the education programme. This must be reflected in the curriculum. Immunization topics are often included within courses on maternal and child health and development and community health. However, they can also be taught in many other courses. The ultimate aim is to integrate the immunization content throughout the entire education programme.

### *Teaching and learning methods*

It is imperative that teaching methods other than lectures are used. The WHO/EPI *Manual for instructors of primary health care workers* outlines different teaching methods which can be applied to the teaching of various topics. Each objective should be examined individually, together with its content, to decide on the best teaching methods to use.

Objectives related to attitudes and complex skills require consciously selected teaching methods:

- **Group work** provides good opportunities for students to explore values and attitudes in themselves and others, and prepares students for the teamwork that is vital when providing immunization and other PHC services.
- **Problem-solving activities** stimulate development of skills in critical thinking, determination of alternatives, examination of the consequences of each, and selection of the best alternative.

- 
- **Role playing** is often an appropriate method for affective or emotional learning (attitudes, feelings, value, etc.), and can contribute to the development of empathy, an important quality in health workers.

### *The practical learning setting*

The selection of settings for practical learning is crucial to the learning process. Practical "hands on" learning experiences are powerful in forming attitudes and perceptions. It is important to give thought to locations not previously considered, which might have the potential for offering good conditions for learning and practising concepts and theories.

The WHO/EPI *Manual for instructors of primary health care workers* provides detailed guidelines for the selection of fieldwork placement sites, that are relevant for learning about immunization services.

Once the settings for practical learning have been selected, emphasis should be given to the scheduling of the sequence of theory and practice in the course outlines. Activities should be arranged in order of increasing complexity.

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## 6. Implementation of the revised curriculum

A detailed (and realistic) action plan for implementation of the revised curriculum should be developed; this plan can also be used as a monitoring tool. It should provide a detailed schedule for implementation; set out the necessary funding and administrative support requirements; incorporate monitoring and evaluation activities (see section 7); and indicate arrangements for final reporting. The action plan may also include some or all of the following steps.

### 6.1 Adaptation of the revised curriculum

A first important step is to send the revised draft curriculum for review and comments. This provides faculty members, technical programme staff, clinical supervisors and students with an opportunity to express their views, and facilitates support for implementation of the revised curriculum.

Following the review, the curriculum should be modified accordingly, but without changing the essential philosophy and major principles of the changes agreed.

### 6.2 Formal approval of the revised curriculum

The next step is to obtain formal approval of the revised curriculum. The following are examples of authorities that may be involved:

- the relevant professional legislative and regulatory bodies and health profession councils
- the relevant examination board (if different from the above)
- the government department responsible for health human resources development and training
- the national or institutional curriculum committee(s).

**Note:** If the above authorities have been represented in the preparatory planning and consulted during the workshop, formal approval should be a relatively easy procedure.

### 6.3 Preparation of faculty teachers, clinical supervisors and students

Faculty teachers and clinical supervisors should be assured that they will receive the necessary resources (funding, human resources, materials and training) to prepare for the implementation process.

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Many teachers and clinical supervisors will already have been involved in the curriculum revision and teaching of the subjects concerned, but there will still be a need for further information and in-service training. Facilitators from and participants in the workshop/working group are suitable persons to organize such training, with technical support from EPI management and clinical staff.

The following training activities are recommended.

- An information meeting or seminar for teachers, administrators and supervisors of student practice training. The agenda of the meeting or seminar could include topics such as: the rationale for the revision of the curriculum, the curriculum model used, the major objectives, the updated content and teaching methodologies, principles for student practice and student assessment, etc.
- A planning workshop/meeting(s) for teachers and clinical supervisors responsible for teaching immunization topics with focus on: final scheduling and planning for teaching methods in theory and clinical practice, and the supervision and assessment of student performance.
- Teacher training for teachers, clinical staff (from outpatient clinics, health centres), district supervisors, etc.; during the training, participants will develop lesson plans and practise teaching of the topics.

#### **6.4 Production and dissemination of learning materials, supplies and equipment**

Availability of an adequate quantity of relevant learning materials, supplies and equipment is a prerequisite for effective implementation of the revised curriculum.

A suggested list of learning materials and supplies is outlined in the WHO/EPI *Manual for instructors of primary health care workers*, but obviously this will need to be adapted locally according to the specific curriculum, course outlines and lesson plans to be implemented.

Appropriate training materials may already be available or need only minor revision. However, it may be necessary to develop new materials. Many good training materials on immunization have already been designed and some research into what is already available and what can be obtained from the WHO Global Programme for Vaccines and Immunization or centres for health learning materials.<sup>3</sup>

#### **6.5 Revision of the curriculum for teacher training**

Teacher training programmes should be reviewed and updated every time curriculum changes are made. This will ensure that future teachers are prepared for the new demands and roles that the teaching of the revised curriculum will require.

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<sup>3</sup> For example, *Guidelines for planning training activities for immunization and disease control activities*, reference WHO/EPI/TRAM/95.02; available on request from the Global Programme for Vaccines and Immunization, World Health Organization, 1211 Geneva, Switzerland.

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## 7. Monitoring and evaluation

In this document the term "monitoring" refers to the process of following up the implementation of the action plan to determine what has been done, how it has been done, and by whom the activities were carried out.

Monitoring can be conducted at any level of the implementation process, as a separate activity, as part of routine supervision or as part of a comprehensive evaluation.

"Evaluation" is more comprehensive than monitoring, and places emphasis on how effective activities have been, focusing on the outcomes of training, and assessment of student learning.

Monitoring and evaluation should be undertaken during the process of implementation, but an evaluation should also be conducted once the whole education programme has been implemented, and graduates from the revised training programme are deployed in the health service.

Planning for monitoring and evaluation may include the following activities:

- Examine and decide which questions and issues should be considered.
- Identify appropriate sources of information.
- Determine methods and procedures for collecting information.
- Design a workplan for the monitoring and evaluation process.
- Determine the time-frame and resources needed.
- Allocate a budget.

The procedures and methods selected must be adapted to the local situation, the type of curriculum, category of health worker and job descriptions concerned, and health programme priorities and goals.

### 7.1 Monitoring

Monitoring the implementation of the action plan provides information on:

- which of the planned changes have been introduced
- the extent of implementation, for example, the number of educational institutions teaching the revised courses/content
- the preparation (training) of teachers and clinical supervisors

- 
- availability of learning materials, supplies and equipment
  - problems encountered in keeping the time-schedule for the implementation
  - factors that have facilitated the implementation process
  - factors obstructing the implementation process
  - proposals for necessary adjustments of the action plan.

The findings should be used in providing support to staff in the educational institutions and health care settings who may be encountering difficulties in their implementation efforts.

## 7.2 Evaluation

Evaluation is an aid to determine effectiveness, efficiency and quality of the education programme in relation to its potential for meeting the learning objectives stated.

Some examples of evaluation methods are:

- critical analysis of all relevant documents, e.g. the curriculum syllabus for different content areas, course outlines, timetables, plans for allocation of students to practise, results of student assessment and examinations, students' course evaluation, etc.
- interviews with all teachers and clinical supervisors concerned with the teaching of immunization and related subjects; these should focus on how the teaching of the revised curriculum has affected students' competencies in providing immunization services
- interviews with final-year students about their experiences and perceptions of the teaching on immunization - in theory and practice
- observations of graduates trained according to the revised curriculum, focusing on their own assessment of their competence in providing immunization services, and their evaluation of the basic education programmes
- interviews with EPI management and technical staff and other health programme managers and supervisors of graduates trained according to the revised curriculum
- interviews with community leaders and clients of immunization services.

In order to document the extent of the contribution made by the education programmes to the development and improvement of immunization and other health services and to the attainment of national health goals, an impact evaluation must be carried out. This is a complex procedure that must be planned with a long-term perspective, and will not be dealt with here.

Experiences gained in strengthening the teaching on immunization can be used to improve teaching on this topic still further and to plan improvements in the teaching of other PHC topics.

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## Selected further reading and/or annexes

Users may choose to add references and/or annexes. If annexes are provided, they should be cited in numerical order, at the appropriate point/s in the text.

**The Global Programme for Vaccines and Immunization**, established by the World Health Organization in 1994, defines its goal as "a world in which all people at risk are protected against vaccine-preventable diseases". The Programme comprises three units:

**Expanded Programme on Immunization**

**Vaccine Research and Development**

**Vaccine Supply and Quality**

**The Expanded Programme on Immunization** focuses on the prevention of selected childhood diseases and, through support to national immunization programmes, aims to achieve 90% immunization coverage of children born each year. Its goals are to eradicate poliomyelitis from the world by the year 2000, reduce measles deaths and incidence, eliminate neonatal tetanus as a public health problem and introduce hepatitis B vaccine in all countries.

**Vaccine Research and Development** supports and promotes research and development associated with the introduction of new vaccines into the Expanded Programme on Immunization. This includes research and development of new vaccines, improvement of immunization procedures and support to epidemiological studies.

**Vaccine Supply and Quality** ensures adequate quantities of high quality, affordable vaccines for all the world's children, supports the efforts of governments to become self-reliant as regards their vaccine needs, and assists in the rapid introduction of new vaccines.

**The Global Programme for Vaccines and Immunization** produces a range of documents, audiovisual materials and software packages to disseminate information on its activities, programme policies, guidelines and recommendations. It also provides materials for group and/or individual training on topics ranging from repair of health centre equipment to curricula guidelines for medical schools, nursing colleges and training of vaccine quality control personnel.

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